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SERIAL NO. 09/880,713 FILING DATE: June 12, 2001

APPLICANT: Aebersold and Zhou GROUP: 1645 | 641

U.S. PATENT DOCUMENTS

				. PATENT DUCUMENTS			
Exmr Initial		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
Mac	1	4,798,795	01/17/89	Sigler	435	177	
MEC	, 2	5,240,859	08/31/93	Aebersold	436	89	
mac	3	5,438,017	08/01/95	Allen et al.	436	89	
Mic	4	5,514,559	05/07/96	Marker-Hahn et al.	435	7.92	
mac	5	5,527,711	06/18/96	Tom-Moy et al.	436	518	
mic	6	5,534,132	07/09/96	Vreeke et al.	205	777.5	
mic	⁷ , ⁷	5,534,440	07/09/96	Aebersold et al.	436	89	
MYC	8	5,538,897	07/23/96	Yates, III et al.	436	89	
MAC	9	5,614,368	03/25/97	Ghazarossian et al.	435	7.5	
MIU	10	5,650,270	07/22/97	Giese et al.	435	6	
ME	/11	5,658,725	08/19/97	Schlieper et al.	435	5	
Was	/ 12	5,686,310	11/11/97	Haystead et al	436	86	
Me	13	5,738,984	04/14/98	Shoseyov	435	4	
mrc	14	5,851,781	12/22/98	Adamczyk et al.	435	7.9	
MKC	/15	5,863,740	01/26/99	Kientsch-Engel et al.	435	7.5	
MEC	16	5,880,270	03/09/99	Berninger et al.	530	391.1	
Mac	/17	5,952,653	09/14/99	Covey et al.	250	288	
My, C	1,8	5,958,703	09/28/99	Dower et al.	435	7.1	
Mac)19	5,965,131	10/12/99	Griffiths et al.	424	133.1	
WAC	20	5,965,457	10/12/99	Magnani	436	518	
MEC	21	6,017,693	01/25/00	Yates, III et al.	435	5	
mac	22	6,057,096	05/02/00	Rothschild et al	435	6	

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FOREIGN PATENT DOCUMENTS

	Document Number	Date	Country	Class	Subclass	Translation Yes/No
M4C 23	WO00/11208	03/02/00	PCT	C12Q	1/00	
Mac 24	WO98/26095	06/18/98	PCT	C12Q	1/68	
MAC 25	WO 90/04786	05/03/90	PCT	G01N	33/53	

OTHER PRIOR ART (including Author, Title, Date, Pertinent Pages, etc.)

		VIII	ER FRIOR ART (including Author, Title, Date, Pertinent Pages, etc.)
Mac	²⁶		Aebersold, R. et al. "Determination of the site of tyrosine phosphorylation at the low picomole level by automated solid-phase sequence analysis" (1991) Anal. Biochem. 199:51-60
Mic	27		Ashikaga, K. et al., "Intramolecular End-to-End Reactions of Photoactive Terminal Groups Linked by Poly(oxyethylene) Chains," (1988) Bull. Chem. Soc. Jpn. 61:2443-2450
MEC	_ 28		Bayer, E. and Wilchek, M., "Biotin-Binding Proteins: Overview and Prospects," (1990) Methods Enzymol. 184:49-51.
Mc	J29		Bennetzen, J.L. and Hall, B.D., "Codon Selection in Yeast," (Mar 1982) J. Biol. Chem. 257(6):3026-3031
MAC	30		Boucherie, H. et al., "Two-dimensional gel protein database of Saccharomyces cerevisiae" (1996) Electrophoresis 17:1683-1699
MEC	31		Brockhausen, I. et al., "Control of glycoprotein synthesis," (1989) J. Biol. Chem. 264(19):11211-11221.
Mac	32		Bruce, J.E. et al., "Obtaining More Accurate FTICR Mass Measurements Without Internal Standards using Multiply Charged Ions," (January 2000) J. Am. Soc. Mass Spec. 11(5):416-421
mac	33		Bruce, J.E. et al., "High-Mass-Measurement Accuracy and 100% Sequence Coverage of Enzymatically Digested Bovine Serum Albumin from an ESI-FTICR Mass Spectrum," (July 1999) Anal. Chem. 71(14):2595-2599
Mac	34		Chapman, A. et al., "The primary glycosylation defect in class E Thy-1-negative mutant mouse lymphoma cells is an inability to synthesize dolichol-P-mannose," (1980) J. Biol. Chem. 255(10):4441-4446.
Mac	35		Clauser, K.R. et al., "Rapid mass spectrometric peptide sequencing and mass matching for characterization of human melanoma proteins isolated by two-dimensional PAGE," (1995) Proc. Natl. Acad. Sci. USA 92:5072-5076.

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Mei	' 36	Davis, T. et al., "Rapid Protein Identification Using a Microscale Electrospray LC/MS System on an Ion Trap Mass Spectrometer," (March 1998) J. Am. Soc. Mass. Spec. 9:194-201
me	37	De Leenheer, A.P. and Thienpont, L.M., "Applications of isotope dilution-mass spectrometry in clinical chemistry, pharmacokinetics, and toxicology," (1992) Mass Spectrom. Rev. 11:249-307.
Mrc	38	DeRisi, J.L. et al., "Exploring the metabolic and genetic control of gene expression on a genomic scale," (October 1997) Science 278:680-686
mac	39	Dongré, A. R. et al., "Emerging tandem-mass-spectrometry techniques for the rapid identification of proteins," (October 1997) Trends Biotechnol. 15:418-425.
Mac	40	Ducret, A. et al., "High throughput protein characterization by automated reverse-phase chromatography/electrospray tandem mass spectrometry," (March 1998) Prot. Sci. 7:706-719.
MC	41	Duncan, M.W., and Poljak, A., "Amino Acid Analysis of Peptides and Proteins on the Femptomole Scale by Gas Chromatography/Mass Spectrometry" (March 1998) Anal. Chem. 70(5):890-896
me	42	Eng, J. et al., "An approach to correlate tandem mass spectral data of peptides with amino acid sequences in a protein database," (1994) J. Am. Soc. Mass Spectrom. 5:976-989.
mac	43	Fenyo, D. et al., "Protein indentification using mass spectrometric information," (May 1998) Electrophoresis 19:998-1005
MAC	44	Figeys, D. et al., "Electrophoresis combined with novel mass spectrometry techniques: Powerful tools for the analysis of proteins and proteomes," (July 1998) Electrophoresis 19:1811-1818.
MIE	′ 45	Figeys, D. and Aebersold, R., "High sensitivity analysis of proteins and peptides by capillary electrophoresis tandem mass spectrometry: Recent developments in technology and applications," (May 1998) Electrophoresis 19:885-892.
Mqv	46	Figeys, D. et al., "Protein identification by solid phase microextraction-capillary zone electrophoresis-microelectrospray-tandem mass spectrometry," (November 1996) Nature Biotech. 14:1579-1583.
MAC	47	Figeys, D. et al., "A microfabricated device for rapid protein identification by microelectrospray ion trap mass spectrometry," (August 1997) Anal. Chem. 69:3153-3160.
Mic	48	Fraser, C.M. et al., "Genomic sequence of a Lyme disease spirochaete, Borrelia burgdorferi," (December 1997) Nature 390:580-586

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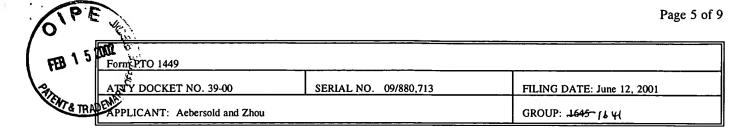
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GROUP: 4645 1641

MT 49	Freeze, H. H., "Disorders in protein glycosylation and potential therapy: Tip of an iceberg?" (November 1998) J. Pediatrics 133:593-600.
MAC 50	Freeze, H. H., "Human glycosylation disorders and sugar supplement therapy," (February 1999) Biochem. Biophys. Res. Commun. 255:189-193.
M7C 51	Futcher, B. et al., "A Sampling of the Yeast Proteome" (November 1999) Mol. Cell. Bio. 19(11):7357-7368
MAU 52	Gamper, H.B., "Facile Preparation of Nuclease Resistant 3' Modified Oligodeoxynucleotides," (1993)Nucl. Acids Res. 21(1):145-150
Might 53	Garrels, J. I. et al., "Proteome studies of Saccharomyces cerevisiae: identification and characterization of abundant proteins." (August 1997) Electrophoresis 18:1347-1360.
M9C 54	Gerber, S.A. et al., "Analysis of rates of multiple enzymes in cell lysates by electrospray ionization mass spectrometry," (February 1999) J. Am. Chem. Soc. 121:1102-1103.
M9C 55	Glaser, L. Phosphomannomutase from yeast. (1966) In Meth. Enzymol. Vol. VIII, Neufeld, E. F.; Ginsburg, V. Eds; Academic Press: New York 1966, pp. 183-185.
ME 56	Gingras, A.C. et al., "Regulation of 4E-BP1phophorylation: a novel two-step mechanism" (June 1999) Genes Dev. 13 (11):1422-1437
MYC 57	Goffeau et al., "Life with 6000 Genes," (Oct 1996) Science 274:546-549
MGC 58	Goodlett, D.R. et al., "Protein identification with a single accurate mass of a cysteine-containing peptide and constrained database searching" (March 2000) Anal. Chem. 72(6):1112-1118
WT 59	Goodlett, D.R. et al., "Quantitative in Vitro kinase reaction as a guide for phosphoprotein analysis by mass spectrometry" (March 2000) Rapid Commun Mass Spectrom. 14(5):344-348
MTC 60	Goodlett, D.R. et al., "Reduced Elution Speed Detection for Capillary Electrophoresis/Mass Spectrometry," (1993) J. Microcolumn Separations 5:57-62
WAC 61	Graves, J.D. & Krebs, ED. "Protein phosphorylation and signal transduction" (May 1999) Pharmacol. Ther. 82(2-3):111-121
M4 62	Gygi, S.P. et al., "Correlation between protein and mRNA abundance in yeast," (March 1999) Mol. Cell. Biol. 19:1720-1730.
M7C 63	Gygi, S.P. et al., "Protein analysis by mass spectrometry and sequence database searching: tools for cancer research in the post-genomic era," (February 1999) Electrophoresis 20:310-319.
W1C 64	Gygi, S. P. et al., "Quantitative analysis of complex protein mixtures using isotope-coded affinity tags" (October 1999) Nature Biotechnology 17:994-999

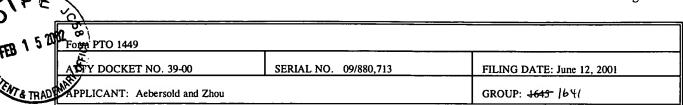
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^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



749 C 65	Gygi, S.P. and Aebersold, R., "Mass spectrometry and proteomics" (October 2000) Curr. Opin. Chem. Biol. 4(5):489-94
MEC 86	Gygi, S.P. et al., "Measuring gene expression by quantitative proteome analysis" (August 2000) Curr. Opin. Biotechnol. 11(4):396-401
MEC 67	Haynes, P. A. et al., "Identification of gel-separated proteins by liquid chromatography electrospray tandem mass spectrometry: Comparison of methods and their limitations," (May 1998) Electrophoresis 19:939-945.
MPC 68	Haynes, P.A. et al., "Proteome Analysis: Biological Assay or Data Archive?" (1998) Electrophoresis Vol. 19:1862-1871
MEC 69	Henzel, W.J. et al., , "Identifying proteins from two-dimensional gels by molecular mass searching of peptide fragments in protein sequence databases," (June 1993) Proc. Natl. Acad. Sci. USA 90:5011-5015
M9C 70	Hodges, P.E. et al., "The Yeast Proteome Database (YPD): a model for the organization and presentation of genome-wide functional data," (January 1999) Nucl. Acids Res. 2(1):69-73.
W1 71	Horn, D.M.et al., , "A Computer Program for Automated Analysis of High Resolution Mass Spectra," (1998) Proceedings of the 46 th ASMS Conf. on Mass Spectromety and Allied Topics, Orlando, FL May 31 - June 4, 1998, p.118
M9 C 72	Hunter, T. "1001 protein kinases redux—towards 2000" (1994) Semin. Cell Biol. 5:367-376
MEC-73	Ideker, T. et al., "Integrated genomic and proteomic analyses of a systematically perturbed metabolic network" (May 2001) Science 292(5518):929-34
Mic 74	Jonscher, K.R. and Yates, J.R. III, "Matrix-assisted laser desorption ionization/quadrupole ion trap mass spectrometry of peptides. Application to the localization of phosphorylation sites on the P protein from Sendai virus" (January 1997) J., Biol. Chem. 272(3):1735-1741
MEC 75	Kataky, R. et al., "Comparative Study of Mono- and Di-substituted 14-Crown-4 Derivatives as Lithium Ionophores," (1990) J. Chem. Soc. Perkin Trans. 2(2):321-327
Mgc 76	Kaur, K. J. and Alton, G.; Hindsgaul, O., "Use of N-acetylglucosaminyl-transerases I and II in the preparative synthesis of oligosaccharides," (1991) Carbohydr. Res. 210:145-153.
MEC 77	Kaur, K. J. and Hingsgaul, O. "A simple synthesis of octyl 3,6-di-O-(-D-mannopyranosyl)D-manopyranoside and its use as an acceptor for the assay of N-acetylglucosaminetransferase I activity," (1991) Glycoconjugate J. 8:90-94.

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M40	, 79	Koch, C.A. et al., "SH2 and SH3 domains: elements that control interactions of cytoplasmic signaling proteins" (1991) Science 252:668-674
Mac	80	Körner, C. et al., "Carbohydrate-deficient glycoprotein syndrome type V: deficiency of dolichyl-P-Glc:Man ₉ GlcNAc ₂ -PP-dolichyl glucosyltransferase," (October 1998) Proc. Natl. Acad. Sci. U.S.A. 95:13200-13205.
ME	81	Laemmli, U.K., "Cleavage of Structural Proteins during the Assembly of the Head of Bacteriophage T4," (Aug 1970) Nature 227:680-695
Mac	82	Lee et al., "HLA-E Surface Expression Depends on Binding of TAP-Dependent Peptides Derived from Certain HLA Class I Signal Sequences," (January 1998) J. Immunol. 160:4951-4960
mac	83	Link, A. J. et al., "Identifying the major proteome components of Haemophilus influenzae type-strain NCTC 8143," (August 1997) Electrophoresis 18:1314-1334.
Mgc	84	Link, J. et al., "Direct analysis of protein complexes using mass spectrometry," (July 1999) Nat. Biotech. 17:676-682
nec	85	Lundell, N. and Schreitmuller, T., "Sample Preparation for Peptide Mapping - A Pharmaceutical Quality-Control Perspective," (January 1999) Anal. Biochem. 266:31-47
Mac	86	Mann, M. and Wilm, M., "Error-tolerant identification of peptides in sequence databases by peptide sequence tags," (1994) Anal. Chem. 66:4390-4399.
mac	87	Marshall, A.G. et al., "Fourier Transform Ion Cyclotron Resonance Mass Spectrometry: A Primer," (May 1998) Mass. Spectrom. Rev. 17:1-35
MAU	88	McMurry, J. E. and Kocovsky, P., "A method for the palladium-catalyzed allylic oxidation of olefins," (1984) Tetrahedron Lett. 25 (38):4187-4190.
me	89	McCormack, A.L. et al. "Direct Analysis and Identification of Proteins in Mixtures by LC/MS/MS and Database Searching at the Low-Femtomole Level" (1997) Anal. Chem. 69:767-776
mac	90	Morris, A.A.M. and Turnbull, D.M., "Metabolic disorders in children," (1994) Curr. Opin. Neurol. 7:535-541.
NAC	91	Mosely, M.A. et al., "Nanoscale Packed-Capillary Liquid Chromatography Coupled with Mass Spectrometry Using a Coaxial Continuous-Flow Fast Atom Bombardment Interface," (1991) Anal. Chem. 63:1467-1473
MIC	92	Neubauer, G. et al., "Mass spectrometry and EST-database searching allows characterization of the multi-protein spliceosome complex," (Sept 1998) Nature Genetics 20:46-50
mad	93	Oda, Y. et al., "Accurate quantitation of protein expression and site-specific phosphorylation," (June 1999) Proc. Natl. Acad. Sci. USA 96:6591-6596

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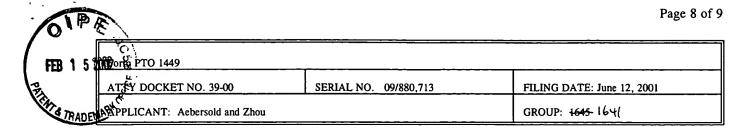
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MAC	94	Ogryzko, V.V. et al., "Histone-like TAFs within the PCAF Histone Acetylase Complex" (July 1998) Cell 94:35-44
mac	95	Okada, S. and O'Brien, J.S., "Generalized Gangliosidosis: Beta-Galactosidase Deficiency," (1968) Science 160:1002-1004.
MAC	/96	Opiteck, G.J. et al., "Comprehensive on-line LC/LC/MS of proteins," (April 1997) Anal. Chem. 69:1518-1524
mic	97	Papayannopoulos, I.A., "The interpretation of collision-induced dissociation tandem mass spectra of peptides" (1995) Mass Spectrometry Rev. 14:49-73
Mac	98	Patterson, S.D. and Aebersold, R., "Mass spectrometric approaches for the identification of gel-separated proteins," (1995) Electro. 16:1791-1814
MAC	, 99	Paulsen, H. and Meinjohanns, E., "Synthesis of modified oligosaccharides of N-glycoproteins intended for substrate specificity studies of N-acetylglucos-aminyltransferases II-V," (1992) Tetrahedron Lett. 33(48):73277330
mic	100	Paulsen, H. et al. "Building units of oligosaccharides: CVII. Synthesis of modified oligosaccarides of N=glycoproteins for substrate specificity studies of N-acetylglucosaminyltransferase II." (1993) Liebigs Annalen der Chemie 7:721-735
ma	101	Pennington, S. R. et al., "Proteome analysis: from protein characterization to biological function," (April 1997) Trends Cell Bio. 7:168-173.
MAC	/102	Qin, J. et al., "A strategy for rapid, high-confidence protein identification," (October 1997) Anal. Chem. 69(19):3995-4001
Mac	/ ₁₀₃	Qin, J. et al., "De Novo Peptide Sequencing in an Ion Trap Mass Spectrometer with ¹⁸ O Labeling" (January 1998) Rapid Communications in Mass Spectrometry 12:209-216
M4C	104	Qin, J. and Chait, B.T., "Identification and characterization of posttranslational modifications of proteins by MALDI ion trap mass spectrometry" (1997) Anal. Chem. 69(19):4002-4009
WEC	105	Romanowska, A. et al., "Serological and Structural Features of Hafnia Alvei Lipopolysaccharides containing D-3-hydroxybutyric Acid," (1994) FEMS Immunol. Med. Microbiol. 8(1):83-88
MAC	106	Romanowska, A., "Michael Additions for Syntheses of Neoglycoproteins," (1994) Methods Enzymol. 242:90-101
Mac	107	Ronin, C. et al., "Transfer of glucose in the biosynthesis of thyroid glycoproteins. I. Inhibition of glucose transfer to oligosaccharide lipids by GDP-mannose," (1981) Biochim. Biophys. Acta 674, 48-57.
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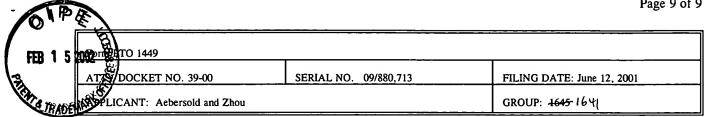
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MGC 108	Ronin, C. et al., "Synthetic substrates for thyroid oligosaccharide transferase. Effects of peptide chain length and modifications in the -Asn-Xaa-Thr- region," (1981) Eur. J. Biochem. 118, 159-164.
ngc 109	Ronne, H., "Glucose repression in fungi," (1995) Trends Genet. 1(1):12-17.
M7C 110	Roth, F.P. et al., "Finding DNA regulatory motifs within unaligned noncoding sequences clustered by whole-genome mRNA quantitation," (October 1998) Nat. Biotechnol. 16:939-945
mac 111	Rush, J. S. and Wachter, C. J., "Transmembrane movement of a water-soluble analogue of mannosylphosphoryldolichol is mediated by an endoplasmic reticulum protein," (1995) <i>J. Cell. Biol.</i> 130:529-536
M9C 112	Rush and Wachter, "Method for determination of cellular levels of guanosine-5'-diphosphate-mannose based on a weak interaction with concanavalin A at low pH," (1995) Anal. Biochem. 224(2):494-501
W42 113	Schachter, H., "Biosynthetic controls that determine the branching and microheterogeneity of protein-bound oligosaccharides," (1986) Biochem. Cell Biol. 64, 163-181
WM C 114	Sechi, S. and Chait, B.T., "Modification of cysteine residues by alkylation. A tool in peptide mapping and protein identification," (December 1998) Anal. Chem. 70:5150-5158.
W 9 115	Shalon, D. et al., "A DNA microarray system for analyzing complex DNA samples using two-color fluorescent probe hybridization," (July 1996) Genome Res. 6:639-645.
MMC 116	Shevchenko, A. et al., "Linking genome and proteome by mass spectrometry: large-scale identification of yeast proteins from two dimensional gels," (December 1996) Proc. Natl. Acad. Sci. U.S.A. 93:14440-14445.
MAC 117	Shevchenko, A. et al., "Mass spectrometric sequencing of proteins silver-stained polyacrylamide gels," (March 1996) Anal. Chem. 68:850-858.
WGC 118	Susin et al., "Molecular Characterization of Mitochondrial apoptosis-inducing factor," (Feb 1999) Nature 397:441-446
M4C 119	Tan, J. et al., "Mutations in the MGAT2 gene controlling complex glycan synthesis cause carbohydrate deficient glycoprotein syndrome type II, an autosomal recessive disease with defective brain development," (October 1996) Am. J. Hum. Genet. 59:810-817
MEC 120	Velculescu, V. E. et al., "Characterization of the yeast transcriptome," (January 1997) Cell 88:243-251.

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Mac 121	Verma, R. et al. "Phosphorylation of Sic1p by G ₁ Cdk required for its degradation and entry into S Phase" (1997) Science 278 (5337):455-60
M-1C 122	Watts, J.D. et al., "Identification by electrospray ionization mass spectrometry of the sites of tyrosine phosphorylation induced in activated Jurkat T cells on the protein tyrosine kinase ZAP-70" (1994) J. Biol. Chem. 269(47):29520-29529
WW 123	Wilbur et al., "Biotin Reagents for Antibody Pretargeting. 2. Synthesis and in Vitro Evaluation of Biotin Dimers and Trimers for Cross-Linking of Streptavidin," (November 1997) Bioconjugate Chem. 8(6):819-832
MGC 124	Wilbur, D.S. et al., "Biotin Reagents for Antibody Pretargeting. Synthesis, Radioiodination, and in Vitro Evaluation of Water Soluble, Biotinidase Resistant Biotin Derivatives," (1997) Bioconjugate Chem. 8:572-584.
M4 125	Winger et al., "High-Resolution Accurate Mass Measurements of Biomolecules Using a New Electrospray Ionization Ion Cyclotron Resonance Mass Spectrometer," (1993) J. Am. Soc. Mass Spec. 4:566-577
May 126	Yates, J. R. et al., "Method to correlate tandem mass spectra of modified peptides to amino acid sequences in the protein database," (1995) Anal. Chem. 67:1426-1436
Mgc 127	Zhou, H. et al., "A Systematic approach to the analysis of protein phosporylation" (April 2001) Nature Biotechnol. 19:375:378

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